CLAIMS

1.   An apparatus for the classification of physiological events comprising a signal input for the input of a physiological signal representing or constituting a physiological event and a classification unit (1) for classifying the physiological signal on the basis of its signal shape, wherein the classification unit (1) includes:

- a transformation unit (3) which is designed to carry out transformation of the physiological signal in such a way that as the output signal it outputs a number of values representing the physiological signal and based on the transformation; and

- a probabilistic neural network (5) which is connected to the transformation unit (3) to receive the values and which contains a number of event classes which represent physiological events and which in turn are each represented by a set of comparative values, which probabilistic neural network is adapted on the basis of the comparison of the values with the comparative values to effect an association of the physiological signal represented by the values with one of the event classes.

2.   An apparatus as set forth in claim 1 characterized in that the transformation unit (3) is adapted for executing the transformation operation on the basis of wavelets and a transformation rule determining the values to be outputted using the wavelets.

3.   An apparatus as set forth in claim 2 characterized in that the comparative values of the probabilistic neural network (5) are based on a transformation procedure in which the same wavelets and the same transformation rule as in the transformation unit (3) are used.

4.   An apparatus as set forth in one of claims 1 through 3 characterized in that the probabilistic neural network (5) includes:

- at least one ascertaining unit (8) for determining association probabilities of the physiological signal with the event classes on the basis

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of the comparison of the values with the comparative values of the respective event class and for outputting the ascertained association probabilities; and

- a selection unit (9) which is connected to the ascertaining unit for receiving the association probabilities and which is adapted to extract the highest association probability from the association probabilities and to associate the physiological signal with the event class having the highest association probability.

5.   An apparatus as set forth in one of claims 1 through 4 characterized in that two or more sets of comparative values representing the same event class are present for at least one event class.

6.   An apparatus as set forth in claim 4 and claim 5 characterized in that the ascertaining unit (8) is adapted to determine a plurality of association probabilities for each event class which has two or more sets of comparative values representing the same event class, and the selection unit (9) is so designed that, for those event classes which have two or more sets of comparative values representing the same event class, it forms average values of the corresponding association probabilities and upon extraction of the highest association probability uses the average values instead of the individual values.

7.   An apparatus as set forth in one of the preceding claims characterized in that connected upstream of the transformation unit (3) is an adjusting unit (28) for centering the physiological signal in a time window of predetermined window width and for outputting the centered physiological signal to the transformation unit (3).

8.   An apparatus as set forth in claim 8 and claim 6 or claim 7 characterized in that, in those event classes which include two or more sets of comparative values representing the same event class, the sets of

comparative values correspond to different offsets in the centering of the centered physiological signal.

9.   An implantable medical device characterized in that it is provided with an apparatus for the classification of physiological events as set forth in one of claims 1 through 8.

10.   An implantable medical device as set forth in claim 9 characterized in that it is in the form of a cardiac pacemaker or defibrillator.